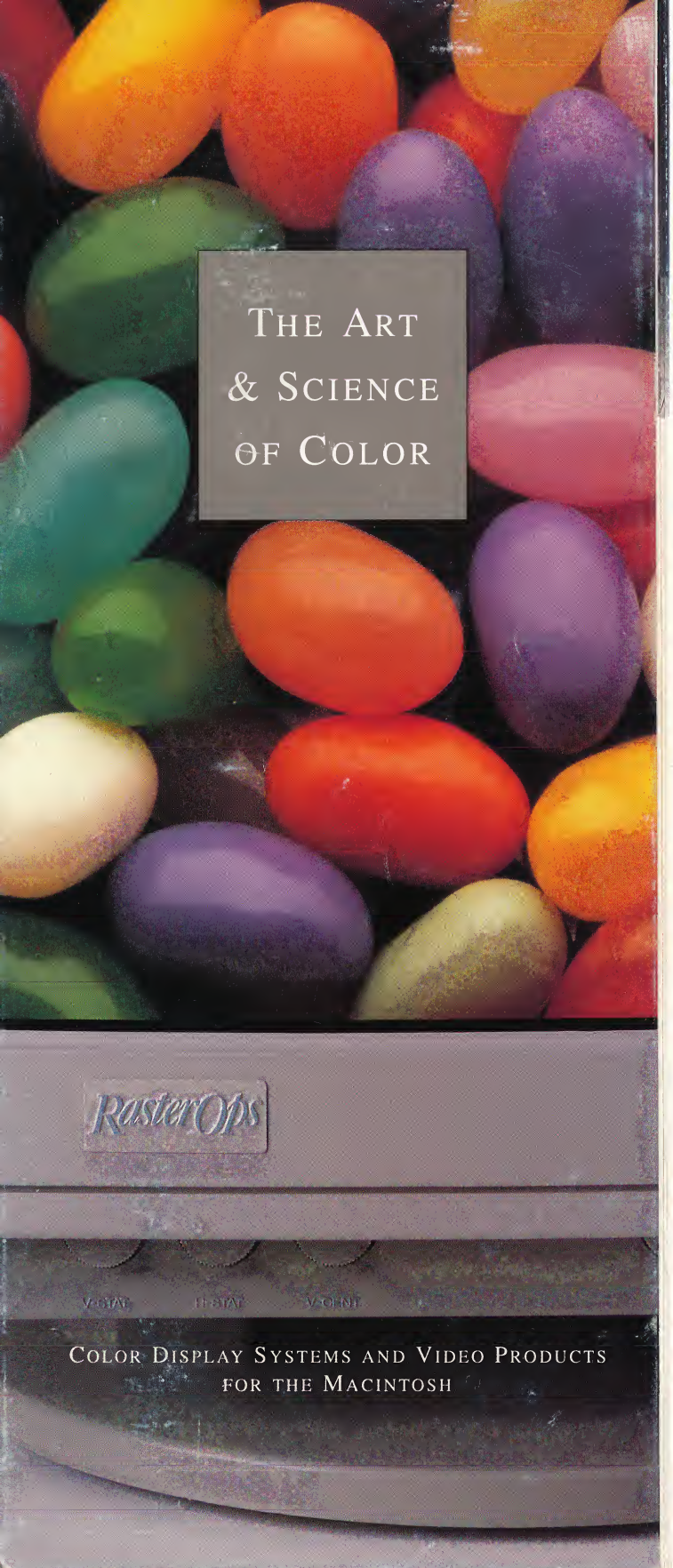
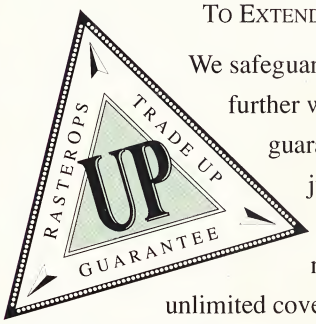


WITH RASTEROPS, YOUR FUTURE IS IN THE CARDS

TRADE UP ANYTIME WITH THE RASTEROPS TRADE-UP GUARANTEE

Every RasterOps product has a built-in upgrade path to protect your investment. With our exclusive Trade-Up program, you can buy just the system you need right now, and then trade up to something more sophisticated whenever you like—at a truly great price. In fact, you can even use another vendor's system to trade up to RasterOps!

RASTERCARE™— AN EXTENDED WARRANTY TO EXTEND YOUR PEACE OF MIND



We safeguard your investment even further with RasterCare, our low-cost guaranteed service program. For just a fraction of what you'd pay for a single typical repair, RasterCare gives you unlimited coverage for a full year beyond the initial one-year RasterOps warranty.

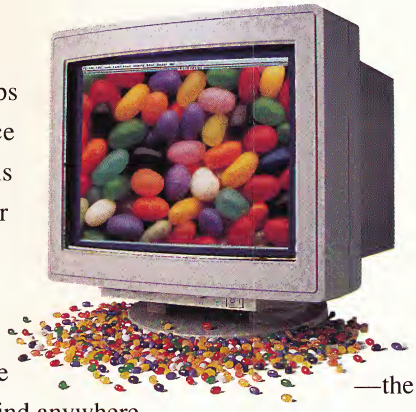
Of course, with RasterOps' superb reliability, your chances of encountering problems are slim. But it's nice to know that should service be required, it won't cost you a dime.

RasterOps®
THE ART & SCIENCE OF COLOR™
RasterOps Corporation
2500 Walsh Avenue, Santa Clara, CA 95051
Phone: 408-562-4200, Fax: 408-562-4065

© 1990 RasterOps Corporation. Product names are trademarks or registered trademarks of their respective holders.

8L/24L DISPLAY BOARDS • TRUECOLOR CALIBRATOR • COLORCAD 228 DISPLAY SYSTEM • ACCELERATOR

RasterOps Makes High-End Solutions Affordable



Presenting the RasterOps line of high-performance graphics display systems and video products for professional Macintosh workstations. Unmistakably the broadest and most cost-effective array of solutions you'll find anywhere.

Whatever your field—graphic design, color pre-press, CAD/CAM, scientific or medical imaging, business presentations, desktop publishing, commercial or professional video, or multimedia—RasterOps has the right system for you. At the right price.

RasterOps' advantages are easy to see — with five features and five benefits listed for each product.

Better Performance By Design

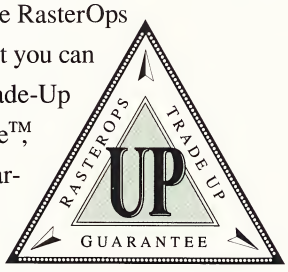
Using our own custom-designed VLSI chips and surface-mount technology, we engineer boards that are smaller, smarter, and more power-efficient—providing better performance and higher reliability at lower cost.

We've Got Color Down To A Science

RasterOps is the leader in advanced photorealistic color imaging, with an unmatched record of technological firsts. We invented 24-bit True Color for the Macintosh —the standard by which everyone else is measured. So whether you need an 8-bit system, full 24-bit True Color, or the latest and greatest in live video boards, the RasterOps name is your assurance of the sharpest, clearest, highest quality color available.

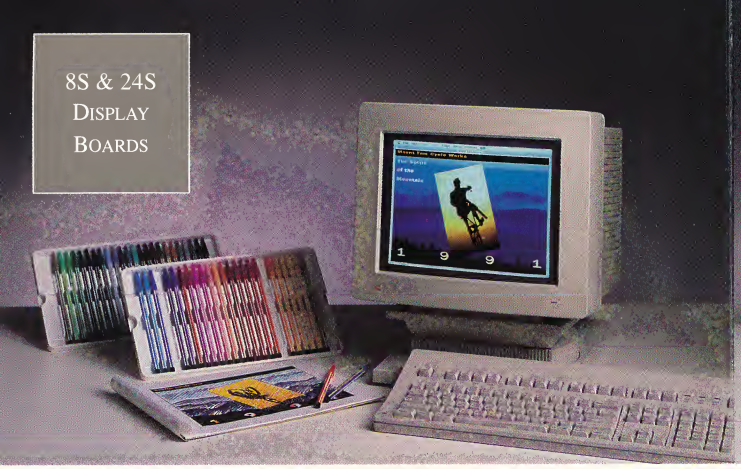
Buy RasterOps And Buy Into The Future

Two more ways we insure RasterOps is the soundest investment you can make: The RasterOps Trade-Up Guarantee and RasterCare™, our low-cost extended warranty. For more information on both—and full details on the entire family of RasterOps products—see your RasterOps dealer. Or call us at 1-800-468-7600.



RasterOps®

THE ART & SCIENCE OF COLOR™



RasterOps gives you a choice of full-featured 8- and 24-bit color graphics boards for Apple 13" or compatible color monitors. Either board may be used with the RasterOps Accelerator to insure maximum performance for demanding applications. Features include Hardware Pan and Zoom, Extended Desktop mode, and support for NTSC and PAL output to record your Macintosh graphics on videotape. And RasterOps' Upgrade Kit guarantees your investment in the entry-level 8S board.

Features	Benefits
RasterOps Accelerator Compatibility	Boosts screen redraw rates for enhanced productivity
Hardware Pan and Zoom, Extended Desktop	Increases productivity with all applications
Auto Detection Intelligence	Automatic detection of cable type
Multiple Oscillators	Provides flexible support for both the Apple 13" monitor and NTSC/PAL output to videotape
Advanced Surface-mount VLSI Design	Lower component count for superior reliability

Application Areas

- Graphics
- Page Layout
- Imaging
- Word Processing
- Spreadsheet
- Architecture
- CAD/CAM
- Textile Design
- Visualization
- Multimedia

Technical Specifications

Display Resolution
- 640 x 480, 72 dpi

Video Memory
- 8S: 0.5 Megabyte
- 24S: 1.5 Megabyte

Display Colors
- 8S: 2, 4, 16, and 256
- 24S: 2, 4, 16, 256, and 16 million

Hardware Pan and Zoom
- 2x and 4x

Extended Desktop
- Up to 4,096 x 512

Monitor Support
- 13", 67 Hz vertical, 35 kHz horizontal

Output Modes
- RGB analog, 67Hz, non-interlaced
- NTSC, 30 Hz, interlaced
- PAL, 25 Hz, interlaced

System Requirements
- Macintosh II family computer
- Apple 32-bit QuickDraw

Here are two 19" display systems offering flexibility, speed and the very latest in time-saving graphics display features. The 8-bit system displays 256 simultaneous colors, while the 24-bit system has a virtually unlimited capacity of over 16 million colors. For truly astounding leaps in productivity, the RasterOps Accelerator can be added to either system to boost screen redraw rates up to 600%. And best of all, the 8L board can be easily upgraded to the 24L later on.

Features	Benefits
RasterOps Accelerator	Dramatic increases in screen redraw rates for enhanced productivity
Hardware Pan and Zoom, Extended Desktop	Increases productivity with all applications
Upgradeability (8L)	Available 8L upgrade kit to guarantee your investment in the board
WYSIWYG Display	Accurate visual feedback, reduces need for printed comps
Flicker-free Refresh Rate	Long-term viewing comfort for maximum user productivity

Application Areas

- Graphics
- Page Layout
- Imaging
- Word Processing
- Spreadsheet
- Architecture
- CAD/CAM
- Textile Design
- Visualization
- Multimedia

Technical Specifications

Screen Size
- 19" diagonal

Display Resolution
- 1,024 x 768, 72 dpi, 60 Hz and 75 Hz on a 19" monitor
- 800 x 600, 72 dpi, 67 Hz on a 16" monitor
- 640 x 480, 72 dpi, 67 Hz on a 13" monitor

Display Colors
- 8L: 2, 4, 16, and 256
- 24L: 2, 4, 16, 256, and 16 million

Hardware Pan and Zoom
- 2x and 4x

Extended Desktop
- Up to 4,096 x 1,024

Video Memory
- 8L: 1 Megabyte
- 24L: 3 Megabyte

System Requirements
- Macintosh II family computer
- Apple 32-bit QuickDraw

The RasterOps Accelerator is the inexpensive, modular solution for boosting the performance of 24-bit color boards up to 600%. This is the only accelerator that supports 13", 16", or 19" monitors and offers on-board memory expansion up to 16 Megabytes for superior off-screen to on-screen drawing. If you want unmatched productivity in color prepress, graphic design, medical imaging, presentations or animation, this is the accelerator board to get.

FEATURES	BENEFITS
NuBus Block Transfer Support	Allows the fastest transfer of data; compatible with Block Transfer boards
On-board Memory Expansion up to 16 MB	Provides tremendous increase in off-screen to on-screen drawing
Modular Single-slot NuBus Board	Flexible configuration for small and large screen systems
Compatible with 32-bit QuickDraw	Insures compatibility with system software applications that support 32-bit QuickDraw
Accelerates in 1, 2, 4, 8, or 24-bit Modes	Flexible acceleration support for most applications

APPLICATION AREAS

- Page Layout
- Graphics
- Imaging
- Multimedia

TECHNICAL SPECIFICATIONS

Board Configurations
- Single slot NuBus board
- Supports Block Mode Data Transfer display boards

NuBus Data Transfer Rate
- 36 Megabytes/second

DRAM Expansion Kit Option
- 1 or 4 Megabyte DRAM SIMM's
- Expandable to 16 Megabytes

Software
- RasterOps Accelerator INIT/CDEV software
- Supports Apple standard 'GWorld' QuickDraw calls
- Provides RAM disk capability with DRAM Expansion Kit Option

Compatibility
- Fully compatible with the RasterOps 8S, 24S, 8L and 24L display boards
- Compatible with other NuBus Block Transfer Boards

System Requirements
- A Macintosh II family product
- RasterOps 8S, 24S, 8L or 24L display board recommended
- Apple 32-bit QuickDraw

MacUser calls our True Color Calibrator "the most sophisticated monitor ever built." This microprocessor-controlled 19" color display system sets the standard for color accuracy, guaranteeing long-term color stability for applications where precision color is critical. No other calibration system can guarantee this kind of accuracy—because no other monitor has a built-in microprocessor to automatically calibrate color 75 times per second.

FEATURES	BENEFITS
Automatic Color-balancing	Consistently accurate color calibration 75 times per second
Optical Sensor	Maintains the highest level of color performance over time
Mathematically-defined Display	Supports CIE color model for consistent, repeatable colors
Software DA Application	Lets the user define and store settings for brightness, contrast, geometry, color temperature, and degauss
24-bit Image Calibration	More accurate True Color-mode calibration than competing systems

APPLICATION AREAS

- Page Layout
- Graphics
- Word Processing
- Display Type
- Imaging
- Pre-press

TECHNICAL SPECIFICATIONS

Screen Size
- 19" diagonal

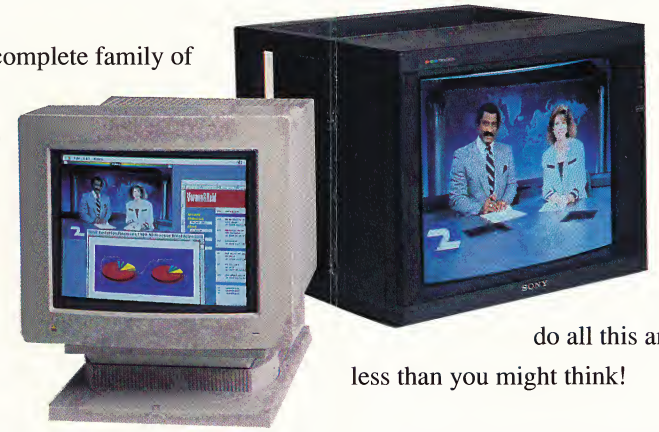
Display Resolution
- 1,024 x 768, 72 dpi, 75 Hz

Output Mode
- RGB

User Controls
- Power switch, brightness, contrast, degaussing

Calibration Specification
- Microprocessor controlled internal calibration
- Optisense® optical sensor, temperature controlled for optimum accuracy
- White level reference accuracy: 9300K, 6500K, 5300K
- Communication port to transmit calibration information to other devices

FOR THE BEST IN LIVE VIDEO, WE'RE THE ONES TO WATCH!



RasterOps offers a complete family of products that add video capabilities to the Macintosh. Rather than take the all-or-nothing approach of other vendors, we keep video affordable with modular solutions. With RasterOps, you can choose just the capabilities you need right now, and add more whenever you want to. RasterOps video products open up a whole new window of productive possibilities:

TURN YOUR MACINTOSH INTO A TV

Now you can view live television in a display window—while simultaneously running your spreadsheet, word processor, or any other application. Control sound and tuning directly from your Mac!

CAPTURE LIVE VIDEO IMAGES

You can grab video images to use in graphic design and desktop publishing applications. Or manipulate and combine them with graphics and animation to create multimedia presentations which you can output to television or record on videotape. RasterOps lets you do all this and more—for a lot less than you might think!

CREATE PROFESSIONAL SPECIAL EFFECTS

Our high-end system turns your Macintosh into a multimedia workstation for building interactive presentations, demonstrations, and training modules. Studio-level features include the ability to overlay, Chroma-key, and blend graphics with video in a variety of ways.

Whatever video ideas you have in mind, RasterOps will help you make them a reality. As with our graphics display systems, you can count on RasterOps for the most advanced capabilities in video and imaging...at the most affordable prices.

FIVE FEATURES 5+5 FIVE BENEFITS

RasterOps' advantages are easy to see — with five features and five benefits listed for each product.

RasterOps®

THE ART & SCIENCE OF COLOR™

VIDEO COLORBOARD 364 • VIDEO EXPANDER • PROVIDEO 32 • VIDEO TUNER

Video ColorBoard 364

The RasterOps Video ColorBoard 364 is the first inexpensive single NuBus slot solution which lets you integrate live video input with true-color Mac-created graphics. With both frame-grabbing and real-time video display, this is a powerful and versatile tool for multimedia applications, presentations, graphic design, and desktop publishing.

Features	Benefits
24-bit Display Board	Displays photorealistic-quality images
Real-time Video Display	Interactive video is a powerful tool for many multimedia applications
Frame-grabbing	24-bit color images may be captured from multiple video formats for desktop publishing and other uses
Software Development Tools	Allows HyperCard, SuperCard, and MacroMind Director users to incorporate live video display
Inexpensive Single NuBus Slot Board	One-board video solution saves you money and preserves NuBus slots for other options

Application Areas

- Page Layout
- Graphics
- Design
- Imaging
- Interactive Training
- Presentation

Technical Specifications

Display Resolution
- 640 x 480, 72 dpi
- Live video in a window display scalable up to 640 x 480

Display Colors
- 2, 4, 16, 256 or millions

Video Memory
- 1.5 Megabyte

Hardware Pan and Zoom
- 2x, 4x

Extended Desktop Modes
- 1,022 x 512—24, 8, 4, 2, 1-bit mode
- 2,046 x 512—4, 2, 1-bit mode

Monitor Support
- 13", 67 Hz vertical, 35 kHz horizontal

Output Modes
- RGB analog, 67 Hz, non-interlaced
- NTSC, 30 Hz, interlaced

System Requirements
- Macintosh II family computer
- Apple 32-bit QuickDraw

TV Tuner

The RasterOps TV Tuner is a television tuner which may be controlled from your Macintosh via the Apple Desktop Bus port. Used in conjunction with such video products as our Video ColorBoard 364 or ProVideo 32, it allows you to change channels, and sound directly from your Mac. Includes built-in audio amplifier, speaker and headphone jack.

Features	Benefits
Digitally-controlled VHF/ UHF/CATV	All tuning and channel selection is handled through the computer
Phase-locked Loop	Digitally-controlled locking assures high-precision tuning
Audio Amplifier	Volume level is processed through the microprocessor with added bass boost to improve sound fidelity
Separate Audio/Video Input	Allows pass-through from an alternate source such as a laserdisc player
ADB Control	Easy control of all Tuner functions through a Macintosh Desk Accessory

Application Areas

- Interactive Training
- Presentation

Technical Specifications

Power Supply
- External (UL Listed): 120 VAC, 60 Hz
- Power consumption: 10W

Connector Type
- Apple Desktop Bus Connector

Physical Size
- 1.5" x 6.5" x 9.5"

Signal Input
- NTSC VHF, UHF, and CATV
- NTSC Composite pass-through input jack
- Audio, 1 volt p-p, 75 Ohms, RCA jack

Signal Output
- NTSC Composite 30 Hz vertical (interlaced), 15.734 kHz horizontal
- Audio, 250 mV p-p, 10 Ohms, RCA jack

Speaker Type
- 2" round, 8 Ohm impedance

System Requirements
- Macintosh SE, SE/30 or Macintosh II Family

ProVideo 32

ProVideo 32 is the ideal solution for professional titling, presentations, video special effects, and editing. You can combine live or pre-recorded video with Macintosh graphics and animation and then output the result to television or record it on videotape. Standard features include the ability to blend graphics and live video in 256 levels of transparency.

Features	Benefits
NTSC Composite, S-Video Input; NTSC Composite, S-Video, RGB Output	Supports most popular video standards
256 Transparency Levels	Transparency levels between video and graphics can be set in real-time for special effects, fade-ins, and fade-outs
Alpha Channel Masking	Allows users to control the brightness of each pixel, for defining mask areas, feather edges, and overlays
Overlay Controls	Chroma-key, subcarrier phase-shift, H/V alignment and underscan/overscan can all be software-controlled
Auto Genlock	Sync to any genlock signal, important for all broadcast users

Application Areas

- Video Titling
- Business Presentation
- Video Production
- Video Editing
- Desktop Video

Technical Specifications

Display Resolution
- 640 x 480, 72 dpi, 67 Hz RGB non-interlaced
- 640 x 486 in NTSC, 30 Hz interlaced, overscan mode
- 556 x 416 in NTSC, 30 Hz interlaced, underscan mode

Display Colors
- 2, 4, 16, 256 or millions (1, 2, 4, 8 or 32-bit per pixel)
- Alpha Channel support

Video Memory
- 2 Megabyte

Inputs
- NTSC Composite and S-Video

Outputs
- RGB, NTSC Composite and S-Video

Software
- SFX Video Option Desk Accessory

System Requirements
- Macintosh II series computer with 4MB RAM minimum. NTSC monitor recommended for viewing output. A second video card and monitor are advised but not necessary.
- Apple 32-bit QuickDraw

Video Expander

The RasterOps Video Expander allows you to easily output Macintosh video in full 24-bit color to video devices for recording and presentation. Macintosh video signals may be converted to NTSC Composite or S-Video, with support for Genlock as well—making the Expander an exceptional value for both professional and commercial users.

Features	Benefits
NTSC Encoding	The contents of your Mac screen can be converted into a television-type signal
S-Video (Y/C) Encoding	Macintosh video can also be converted to S-Video, a higher-quality signal for professional use
Sync Generator	Sends a locked sync and sub-carrier signal. Provides serrations during the vertical interval
Genlocking	Allows RasterOps boards to be combined with other video signals in a studio environment
Sub-carrier Phase Shift Control	The Video Expander signal can be phase-aligned with other video equipment for proper color balance

Application Areas

- Professional, industrial, and commercial television
- Desktop Multimedia
- Medical Imaging
- Image Archiving
- Presentations
- Training
- Any application that requires output of computer graphics to videotape.

Technical Specifications

Output
- NTSC Composite, RGB/Sync, S-Video (Y/C)

Termination
- 75 ohm. Switchable on composite video

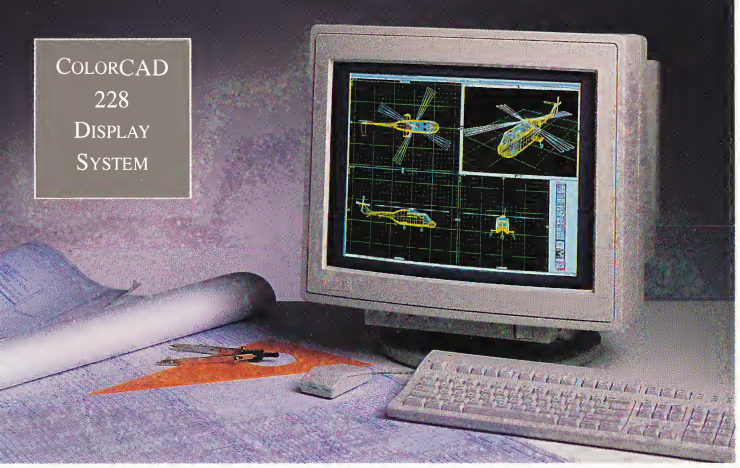
Connections
- NTSC/RGB—BNC
- S-Video—4 pin mini DIN

Genlock
- Composite video, Composite Sync, external subcarrier or luminance portion of S-Video

Phase Adjustments
- 360° with respect to applied subcarrier

Power Supply
- External (UL Listed), 120 VAC, 60 Hz
- Power consumption: 10W

System Requirements
- Signal input that is 30 Hz vertical, 15.734 kHz horizontal. Output is to NTSC Composite, S-Video, and RS-170 RGB.



This is the system of choice for CAD applications. With an ultra-high resolution display board and 19" Trinitron monitor, ColorCAD allows you to display a full 11" x 17" drawing on one screen, eliminating the time-consuming scrolling and redrawing of smaller displays. Productivity is further enhanced with panning, zooming, and Extended Desktop capabilities.

Features	Benefits
1,280 x 1,024 Resolution	Larger images and more text displayable without screen redraw
Multiple Display Resolutions	Greater system flexibility and versatility
Hardware Pan and Zoom, Extended Desktop	Greater work area for increased productivity
Trinitron Monitor, Tilt-and-swivel Base	Top-quality graphic display designed for long-term comfort
Multiple Bit Modes	Lets you work at any bit depth for any application

Application Areas

- Page Layout
- Design/Drafting
- Data Visualization/Image Processing
- CAD/CAM
- Medical Imaging
- Architectural Design

Technical Specifications

Screen Size
- 19" diagonal

Display Resolution
- 1,280 x 1,024, 90 dpi, 60 Hz
- 1,024 x 768, 72 dpi, 60 Hz
- 800 x 600, 72 dpi, 67 Hz on a 16" monitor
- 640 x 480, 72 dpi , 67 Hz on a 13" monitor

Display Colors
- 2, 4, 16 or 256

Video Memory
- 1.5 Megabyte

Hardware Pan and Zoom
- 2x, 4x

User Controls
- Power switch, brightness, contrast, convergence

Extended Desktop
- Up to 4,096 x 1,024

System Requirements
- Macintosh II family computer
- Apple 32-bit QuickDraw

RasterOps– The Whole Picture

Color Products

8L/24L Display Systems
- Two 19" display systems with the utmost in flexibility, speed, and time-saving features like Hardware Pan and Zoom and Extended Desktop. Compatible with the RasterOps Accelerator.

True Color Calibrator
- The microprocessor-controlled 19" display system that sets the industry standard for consistently accurate color. The only system with automatic self-calibration 75 times per second.

8S/24S Display Boards
- A choice of sophisticated 8- and 24-bit colorboards for Apple 13" or compatible monitors, featuring Hardware Pan and Zoom, Extended Desktop, and RasterOps Accelerator compatibility.

ColorCAD 228 Display System
- An ultra-high-resolution display system especially for CAD applications. Offers multiple display resolutions and productivity-enhancing features.

Accelerator
- The inexpensive, modular QuickDraw accelerator that increases 24-bit ColorBoard performance up to 600%. Unequaled productivity for a wide range of applications.

Video Products

Video ColorBoard 364
- The affordable way to integrate live video and Macintosh graphics. Provides both frame-grabbing and real-time video display.

TV Tuner
- A television tuner for the Macintosh that lets you control channels and volume through the computer. Built-in audio amplifier and speaker included.

ProVideo 32
- Lets you blend video with Macintosh graphics and output the result to television or videotape. Professional-level capabilities are standard.

Video Expander
- A stand-alone device that lets you easily convert Macintosh output to television-type signals for recording and presentation. Includes studio-quality features.

FrameGrabber 324NC
- Captures 24-bit True Color images from multiple video sources for use in Macintosh applications. Provides a variety of image-enhancement capabilities.

Gray Scale Products

ClearVue/GS Gray Scale Display System
- The ultimate in precision technology for the Macintosh II. It offers more standard gray scale features for the price of most monochrome systems.

ClearVue/GS30 Gray Scale Display System
- The technology of the ClearVue/GS display brought to the Macintosh SE/30. It's the price/performance leader offering a complete solution.

Monochrome Products

ClearVue/II Display System
- Built with complete technological, viewing and ergonomic reliability, it will help boost your productivity in no time.

ClearVue/SE Display System
- Based on RasterOps' reliable design with accelerator, zooming capabilities, and extra memory. An unmatched price-to-performance ratio.